

APPENDIX D. Standards for infiltration basins, dry wells, and subsurface fluid distribution systems (Section 413 License by Rule Standards)

(1) Definitions

- (a) Dry-weather discharge.** Any discharge to a stormwater management system that is not composed entirely of stormwater, other than discharges resulting from fire-fighting activities. Dry-weather discharges can originate from direct connections to the stormwater management system from industrial, commercial, or residential facilities, or indirectly as surface or subsurface discharges to the stormwater collection system.
- (b) Drywell.** A well or other facility deeper than it is wide, completed above the water table so that its bottom and sides are typically dry except when receiving fluids.
- (c) Infiltration.** Any process specifically used to meet all or part of the stormwater quantity and quality standards of this rule by actively directing all or part of the stormwater into the soil. Infiltration is the process by which runoff percolates through the unsaturated overburden and fractured bedrock to the water table. For the purposes of this rule, infiltration does not include:
- (i) Incidental wetting of soil in ditches detention basins or the equivalent;
 - (ii) Wetting of filtration systems such as dry swales, which are not themselves considered infiltration systems, although these may be used to treat runoff prior to discharge to an infiltration area; and,
 - (iii) Wetting of buffers meeting department requirements for use as quality or quantity treatment buffers. Discharge of runoff to areas of the site where the water will collect and percolate is considered infiltration if the volume, rate, or quality of the discharge exceeds the runoff treatment capacity of the area, as determined by department requirements for quality or quantity treatment buffers.
- (d) Infiltration (Retention) Basin.** A basin or other facility wider than it is deep and designed to hold runoff without any means of other than evapotranspiration, infiltration, or emergency bypass.
- (e) Surface Irrigation.** Application of wastewater to the land by means of sprinklers, nozzles, holes in piping, or similar means, including drip irrigation.
- (f) Subsurface Fluid Distribution System.** Any system designed to dispose of stormwater beneath the surface of the earth, including, but not limited to, settling tanks, disposal fields, pretreatment filters, pipes, or any other fixture, mechanism, or apparatus used for this purpose.
- (g) Zone of Contribution or Delineated Contributing Area.** The projection of the three-dimensional volume of water flowing to a discharging well onto a two-dimensional map view.

(2) Location

- (a) Storage or handling of petroleum products, pesticides, fertilizers, and hazardous substances.** Infiltration of runoff from subwatersheds of an activity in which petroleum products, pesticides, fertilizers, hazardous substances, or other materials with the potential to contaminate

groundwater are stored or handled, is not allowed. This does not apply to storage of heating oil in a tank or tanks with a total volume of 990 gallons or less and serving a single consumptive residential user. Infiltration of runoff from subwatersheds in which pesticides, fertilizers, and similar turf chemicals are used in accordance with a management plan approved by the Department may be allowed, provided they are not in the delineated contributing area of a well that is part of a public water supply system.

See (3)(k) concerning the potential use of containment structures.

- (b) Storage or handling of road salt or similar materials.** Infiltration of runoff from subwatersheds of an activity in which road salt or similar materials are stored or handled in bulk is not allowed.
- (c) Infiltration of runoff from asphalt or concrete paving or equivalent material.** Infiltration of runoff from a total of one acre or more of asphalt or concrete paving or equivalent material at a given project is not allowed except by means of infiltration basins as described under the design criteria below. This limitation does not apply to roads entirely within subdivisions consisting of lots for single-family detached residential housing or to use of porous pavement. Use of porous pavement is limited by subsections 2(a) and 2(b), and other requirements of this chapter.
- (d) Infiltration of runoff from lawn areas, vegetated areas, and roofs.** Infiltration of runoff from lawn areas and other vegetated areas, playing fields, and roofs of residential and commercial structures where no manufacturing or processing occurs, other than for-home-based industries, is allowed, provided that any application of fertilizers, pesticides, and similar turf-management chemicals, is in accordance with a Department approved management plan. Lawn areas of five acres or less on individual lots that are sold or developed as part of a residential subdivision consisting of lots for single-family detached residential housing are exempt from this requirement.
- (e) Dry-weather discharges, and stormwater from outside drainage systems.** Dry-weather discharges and stormwater from drainage systems outside the area of the activity may not be discharged to an infiltration system, unless specifically approved by the Department.
- (f) Water supply wells.** Unless specifically approved by the Department and the Department of Human Services' Drinking Water Program, if applicable, infiltration systems may be located no less than 300 feet from any private water supply well and may not be located within the delineated contributing area of a public water supply well. Department approval will be subsequent to review and approval of a study by a Maine Certified Geologist demonstrating that discharges from the infiltration system will not be within the zone of contribution of the well or wells. Infiltration systems should be located as far downgradient of any water supply well as practical.
- (g) Setback from subsurface wastewater disposal system.** Infiltration systems should be considered a major watercourse for the purposes of Table 700.2 of the Maine Subsurface Wastewater Disposal Rules, 144A CMR 241, for determining applicable setbacks from the relevant components of a subsurface wastewater disposal system. Additional setback distances may be required by the Local Plumbing Inspector or the Department of Human Services' Division of Health Engineering. Infiltration systems should be located as far downgradient of any component of a subsurface wastewater disposal system as practical. Infiltration of stormwater may not reduce the depth to the seasonal high water table beneath a surface-irrigation site, land-disposal area for septage or other waste, or other waste or wastewater management

facility, without specific approval by the Department and, if applicable, the Department of Human Services.

(h) Setback from protected natural resources. Infiltration systems may be located no less than 25 feet from any protected natural resource, other than fragile mountain areas, as defined at 38 M.R.S.A §480-B. Infiltration systems should be located as far upgradient of any such resource as practical.

(i) Impact on groundwater flow. Stormwater infiltration may not adversely affect the direction of groundwater flow so as to impair the operation of groundwater monitoring programs or cause migration of existing contaminated groundwater that would result in an unreasonable adverse impact on the quality of surface water, groundwater, or drinking water supplies.

(j) Areas with less than five feet of saturated overburden above the bedrock surface. Infiltration systems serving any activity with a total of one acre or more of impervious area may not be located in areas with less than five feet of saturated overburden above the bedrock surface, as measured during the seasonal low water table. This limit does not apply to runoff draining entirely from areas of non-asphalt roofing, where no manufacturing or processing occurs, other than for-home-based industries. Blast rock or similar material is to be considered as overburden and not as bedrock. Separation from bedrock and depth to the water table at any project may be demonstrated by means of test pits, borings, or similar invasive explorations, or by non-invasive geophysical methods such as seismic surveys. Demonstration of a continuous in-situ layer, at least five feet in thickness, of unfractured basal till or marine, estuarine, or lacustrine clay between bedrock and the unit into which stormwater is to be infiltrated may substitute for this requirement, at the discretion of the Department. Infiltration systems discharging to blast rock or similar highly permeable fill, or to units underlain by low-permeability materials such as basal till or marine, estuarine, or lacustrine clay, should assess the potential adverse impacts of seepage as required in paragraph 3(b), below.

(3) Design

(a) Permeability of the soil. The permeability of the soil at the depth of the base of the proposed infiltration system must be no less than 0.5 inches per hour, and no greater than 2.41 inches per hour. Imported or manufactured soils or other materials, such as compost, as specifically approved by the Department, may be installed at the base and sides of the proposed infiltration system to reduce the permeability to no greater than 2.41 inches per hour if necessary. This layer must be at least six inches in thickness, measured perpendicular to the closest part of the infiltration system. Permeability must be shown to be reasonably consistent across the proposed infiltration area and may be determined by in-place well or permeameter testing, by analyses of soil gradation, or other means acceptable to the Department.

(b) Stability of slopes. Mounding of stormwater on clay, bedrock, or other low-permeability surfaces as a result of stormwater infiltration may not create seepage or pore pressures that adversely affect the stability of slopes in the vicinity of the activity. The applicant may assess the risk of this by an assessment by a qualified professional of the potential for seepage erosion or other adverse effects on slope stability, including test borings or other subsurface explorations, modeling, or other means as determined to be necessary and applicable.

(c) Pre-construction surface grade. The pre-construction surface grade should be 20% or less at the location of the proposed infiltration system.

- (d) Bottom of the infiltration system.** The bottom of the infiltration system, including any stone layer or other material below the depth of manufactured components of the system, must be at least three feet above the elevation of the seasonal high water table.
- (e) Drainage time.** The infiltration system must be designed to drain completely within 72 hours following the runoff event.
- (f) Conveyance of overflow.** Infiltration systems must include measures to convey overflow to a stable discharge location.
- (g) Control of access.** Access to any infiltration area must be controlled during construction to prevent compaction of the soil.
- (h) Geotextile fabric between stone and soil layers.** A geotextile fabric with suitable characteristics must be placed between any stone layer and adjacent soil.
- (i) Features to minimize discharge of sediment.** Grassed swales, sediment traps, and other features must be incorporated in the design to minimize discharge of sediment to the infiltration system. The bottom and sides of infiltration basins must be covered by at least six inches of loam, of which the bottom three inches are to be tilled into the native soil. All areas of the basin not required to be covered by stone or other non-vegetative material in order resist erosion must be maintained as grass.
- (j) Devices to trap petroleum products.** Dry wells or subsurface fluid distribution systems receiving runoff from small areas of asphalt or concrete paving and not prohibited under 2(C) must include sump skimmers, sorbent booms, or similar devices providing enough sorption capacity to effectively trap petroleum products from the anticipated flows. These devices must be in place for at least the first six months of operation, and for at least six months after any repaving or reconstruction.
- (k) Containment structures.** Storage and handling areas for petroleum products, road salt, and other potential groundwater contaminants may be isolated within containment structures, buildings, or other enclosures to effectively remove those areas from subwatersheds, so that infiltration structures may be constructed to serve the remaining areas of the subwatershed, provided that the facility is operated in accordance with a Spill Prevention, Control, and Countermeasures Plan, Operation and Maintenance Plan, or equivalent document approved by the Department.
- (l) Monitoring.** Groundwater quality monitoring may be required as determined to be necessary by the Department, in order to demonstrate that the infiltration system will operate in compliance with the Water Classification Program. Groundwater quality monitoring will generally be required for activities infiltrating water from areas of heavy turf chemical use, such as golf courses and certain athletic fields, and large connected impervious areas, such as parking lots and runways. Groundwater quality monitoring will generally not be required for activities infiltrating water from lawn areas and other vegetated areas, residential developments except for those subwatersheds with large parking areas, playing fields, low-use roads such as residential subdivision roads, and roofs of residential and commercial structures.

(4) Maintenance

- (a) Snow storage prohibited.** With the exception of areas of porous pavement, the infiltration area may not be used for storage of snow removed from any on-site or off-site area.
- (b) Observation wells, access points, gauges or rods, and expected rate of drainage.** Any subsurface fluid distribution system must have at least one observation well to determine how quickly the system drains after a storm, and access points to allow for inspection and removal of accumulated sediment from the infiltration system and any sediment traps. Dry wells and infiltration basins must have staff gauges, marked rods, or similar instrumentation to measure the accumulation of sediment and determine how quickly the system drains after a storm. The maintenance plan for the infiltration system must indicate the expected rate of drainage of the system and provide for removal of sediment.
- (c) Pollution-control devices.** Pollution-control devices such as oil – water separators, skimmers, and booms must be inspected regularly to determine if they need to be cleaned or replaced.
- (d) Sediment removal and rehabilitation or replacement of system.** Sediment must be removed from the system to prevent deterioration of system performance. The system must be rehabilitated or replaced if its performance is degraded to the point that applicable stormwater quantity or quality standards are not met.

Note: Stormwater infiltration systems not meeting the standards above may require an individual waste discharge permit. Nothing in this chapter may be construed to limit the Department's authority under 38 M.R.S.A. §413 or 38 M.R.S.A. Article 4-A. An infiltration system serving a development regulated under the Site Location of Development Act may be required to meet additional standards.